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Visual preferences of students with profound mental retardation and healthy, full-term infants

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Abstract

Thirty students with profound mental retardation (age range: 3–5 to 19–11) and 30 healthy, full-term infants (5–8 months) were shown 12 stimuli, three times each. Four patterned stimuli were presented one to a card and each pattern appeared in black-and-white, black-and-yellow, and red-and-yellow. Both groups looked significantly longer at face patterns than other patterns. Students with profound mental retardation looked longer at black-and-white patterns than other color combinations. Infants looked longer at red and yellow cards than did students with profound mental retardation. The measurement method was practical, reliable, and sensitive to both within and between group differences. Results from this assessment method may help determine the most salient visual stimuli for evoking active-alert states for students with profound mental retardation. Individual variability was evident in the data, which demonstrates the importance of examining preferences for each individual when planning intervention. Implications for future research and intervention are discussed.

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1. Introduction

The importance of investigating procedures that evoke and maintain states of alertness as well as adaptive responding for individuals with profound mental

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retardation has been noted by several researchers (Guess et al., 1988; Richards, 1990; Sternberg, 1994). Although state patterns may vary between rest and vigilance, clearly a state of alertness facilitates learning. Richards and Sternberg (1992) as well as Guess et al. (1990) found that individuals with severe or profound disabilities exhibit awake states, although as a group, for the majority of observations they do not exhibit an aroused/orienting state. If an excessive amount of time is spent in nonalert states, that is states not optimal for learning, such states might become entrenched over extended periods of time (Guess et al., 1993). One method to enhance the alertness and responsiveness to environmental stimuli for individuals with profound mental retardation may be to present visual stimuli for which they have shown a preference (i.e., stimuli likely to evoke their attention).

Unfortunately, the visual preferences of these individuals have been investigated only on a very limited basis. Previous research (Fagan & Haiken-Vasen, 1997; Mundy, Seibert, Hogan, & Fagan, 1983; Shepherd & Fagan, 1981) examined preferences for novel vs. familiar visual stimuli for participants who were developmentally delayed. Other than novel vs. familiar characteristics, however, studies have not assessed the types of stimuli that are likely to evoke attending for these individuals. The previous studies used a visual preference apparatus where an examiner observes the eyes of a participant through a peephole in the center of a stage used to present pairs of visual stimuli. Such equipment is not practical for use outside of the laboratory environment. The purpose of using novelty preference in these studies was to either evaluate visual acuity or level of cognitive functioning, not to determine the most salient stimuli for capturing the attention of children with developmental delays.

Visual preferences of infants developing normally, however, have been studied rather extensively. Though cognitive levels of functioning for individuals with profound mental retardation are similar in some respects to those of intellectually average infants, it is not known whether their visual preferences are similar also.

Studies have shown that young infants display a preference for high contrast (e.g., black-and-white) over low contrast (e.g., color) patterns (Fantz & Nevis, 1967; Fantz & Yeh, 1979). This preference seems to result because of the low resolution of the vision of young infants making high contrast achromatic stimuli easier to see (Maurer & Maurer, 1988). Further, the cones located in the fovea of the eye are immature, and it is the cones that aid detection of color differences and fine lines. By approximately 3–4 months of age, however, color vision of infants developing normally is similar to that of adults (Teller & Bornstein, 1987).

In addition to a preference for high contrast stimuli, intellectually average infants generally have shown preferences for the following types of visual stimuli: patterns over solids (Fantz, 1961), segmented over solid lines (Pipp & Haith, 1984), bull's eye over stripes (Fantz, 1961), thick over thin lines (Pipp & Haith, 1984), and vertical over horizontal lines (Haith, 1980; Pipp & Haith, 1984). At approximately 2–3 months of age, infants prefer face patterns over other patterns (Dannemiller & Stevens, 1988; Maurer, 1985). Thus, healthy, full-term infants are a group for whom visual preferences have been fairly well established in earlier research.

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